

## **BORON INCORPORATED DIFFUSION BARRIER MATERIAL**

### Abstract of the Disclosure

A diffusion barrier layer comprising  $\text{TiN}_x\text{B}_y$  is disclosed for protection of gate oxide layers in integrated transistors. The diffusion barrier layer can be fabricated by first forming a TiN layer and then incorporating boron into the TiN layer. The diffusion barrier layer can also be fabricated by forming a  $\text{TiN}_x\text{B}_y$  layer using a TDMAT process including boron. The diffusion barrier layer can also be fabricated by forming a  $\text{TiN}_x\text{B}_y$  layer using a CVD process. The diffusion barrier layer is of particular utility in conjunction with tungsten or tungsten silicide conductive layers formed by CVD.

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